

What is claimed is:

1. An arrangement for determining the glucose concentration in a tissue fluid, the arrangement comprising
a microdialysis probe for the diffusion exchange of glucose with surrounding tissue fluid,
a perfusion device for perfusing the microdialysis probe with glucose-containing perfusate to obtain dialysate,
a measuring cell located after the microdialysis probe, the cell being formed to detect measurement signals that correlate with the glucose content of the dialysate, and
a control device which adjusts the content of glucose in the perfusate to the glucose content of the tissue fluid in accordance with a command variable derived from the measurement signals of the measuring cell .
2. The arrangement of claim 1 further comprising an evaluation unit to determine the momentary starting content of glucose in the perfusate when a control deviation is negligible as a measure for the glucose content of the tissue fluid.
3. The arrangement of claim 2 wherein the perfusion device has a perfusate store and a transport unit for the intermittent transport of perfusate.
4. The arrangement of claim 1 wherein the perfusion device has a perfusate store and a transport unit for the intermittent transport of perfusate.
5. The arrangement of claim 4 wherein the perfusate store has at least two separate reservoirs to hold perfusion liquids with different glucose concentrations.
6. The arrangement of claim 4 wherein the perfusate store has a first reservoir containing a glucose-free perfusion liquid and a second reservoir containing a glucose-containing perfusion liquid.
7. The arrangement of claim 4 wherein the control device has a flow mixer that includes a valve formed to adjust the starting content of the glucose in the perfusate.

8. The arrangement of claim 1 wherein the control device has a flow mixer that includes a valve formed to adjust the starting content of the glucose in the perfusate.
9. The arrangement of claim 8 wherein the valve is a mixing valve or a clock-pulsed directional control valve.
10. The arrangement of claim 2 wherein the control device has a flow mixer that includes a valve formed to adjust the starting content of the glucose in the perfusate.
11. The arrangement of claim 8 wherein the flow mixer includes an inlet side connected to reservoirs for feeding in perfusion fluids with different glucose contents and an outlet side connected to a perfusate tube leading to the microdialysis probe.
12. The arrangement of claim 8 wherein the control device has a digitally operated controller.
13. The arrangement of claim 1 wherein the control device has a digitally operated controller.
14. The arrangement of claim 13 wherein the controller is a microcontroller.
15. The arrangement of claim 2 wherein the control device has a digitally operated controller.
16. The arrangement of claim 8 wherein the control device has a digitally operated controller.
17. An arrangement for determining the glucose concentration in a tissue fluid, comprising
 - a microdialysis probe inserted into the tissue fluid,
 - at least two reservoirs for holding perfusion liquids with different glucose contents,
 - a transport unit to perfuse the microdialysis probe with glucose-containing perfusate to obtain dialysate,

a flow-through measuring cell located downstream of the microdialysis probe to register measurement signals that correlate with the glucose content of the dialysate, and

a control device connected on an input side to the measuring cell, which control device has a flow mixer connected on an inlet side to the reservoirs and on an outlet side to the microdialysis probe, which acts as an adjuster to regulate the content of glucose in the perfusate.

18. An arrangement for determining the glucose concentration in a tissue fluid, comprising

a microdialysis probe,

a perfusion device in communication with the microdialysis probe to perfuse the microdialysis probe with glucose-containing perfusate to obtain dialysate,

a measuring cell being located after the microdialysis probe and having an electrode sensor formed to detect measurement signals that correlate with the glucose content of the dialysate, and

a control device, which adjusts the content of glucose in the perfusate to the glucose content of the tissue fluid in accordance with a command variable corresponding with the glucose concentration of the tissue fluid and being derived from the measurement signals of the measuring cell.

19. The arrangement of claim 18 further comprising an evaluation unit to determine the momentary starting content of glucose in the perfusate.

20. The arrangement of claim 18 wherein the perfusion device has a perfusate store and a transport unit.

21. The arrangement of claim 20 wherein the perfusate store has at least two separate reservoirs to hold perfusion liquids with different glucose concentrations.

22. The arrangement of claim 20 wherein the perfusate store has a first reservoir containing a glucose-free perfusion liquid and a second reservoir containing a glucose-containing perfusion liquid.

23. The arrangement of claim 18 wherein the control device has a flow mixer comprising a mixing valve or clock-pulsed directional control valve as an adjuster formed to adjust the starting content of glucose in the perfusate.

24. The arrangement of claim 23 wherein an inlet side of the flow mixer is connected to at least two reservoirs for feeding in perfusion fluids with different glucose contents and an outlet side of the flow mixer connects a perfusate tube leading to the microdialysis probe.

25. The arrangement of claim 18 wherein the control device has a digitally operated controller.

26. An arrangement for determining the glucose concentration in a tissue fluid, comprising

a microdialysis probe inserted into the tissue fluid,

at least two reservoirs for holding perfusion liquids with different glucose contents,

a transport unit in communication with the microdialysis probe and the at least two reservoirs, the transport unit being formed to perfuse the microdialysis probe with glucose-containing perfusate to obtain dialysate,

a flow-through measuring cell located downstream of the microdialysis probe and formed to register measurement signals that correlate with the glucose content of the dialysate, and

a control device in communication with the measuring cell, the control device having a flow mixer in communication with at least two reservoirs and with the microdialysis probe, the flow mixer being formed to act as an adjuster to regulate the content of glucose in the perfusate.